



Complete Summary

GUIDELINE TITLE

Prevention of pressure ulcers.

BIBLIOGRAPHIC SOURCE(S)

Folkedahl BA, Frantz R. Prevention of pressure ulcers. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core; 2002 May. 21 p. [38 references]

COMPLETE SUMMARY CONTENT

SCOPE

METHODOLOGY - including Rating Scheme and Cost Analysis

RECOMMENDATIONS

EVIDENCE SUPPORTING THE RECOMMENDATIONS

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

QUALIFYING STATEMENTS

IMPLEMENTATION OF THE GUIDELINE

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT

CATEGORIES

IDENTIFYING INFORMATION AND AVAILABILITY

SCOPE

DISEASE/CONDITION(S)

Pressure ulcers; also called decubitus ulcers, bed sores, or pressure sores

GUIDELINE CATEGORY

Prevention

Risk Assessment

CLINICAL SPECIALTY

Family Practice

Geriatrics

Internal Medicine

Nursing

Nutrition

Physical Medicine and Rehabilitation

INTENDED USERS

Advanced Practice Nurses
Dietitians
Health Care Providers
Hospitals
Nurses
Physical Therapists
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To determine those patients at greatest risk for development of pressure ulcers
- To describe prevention activities which will reduce patients' risk for pressure ulcers

TARGET POPULATION

Patients who have been identified as "at risk" for pressure ulcers

INTERVENTIONS AND PRACTICES CONSIDERED

1. Assessing patients for alterations in skin
2. Repositioning patients or encouraging patients to shift their weight
3. Keeping the head of the patient's bed at or below a 30-degree angle
4. Placing pressure-reducing surfaces on bed and/or chair
5. Use of site-specific support products on the patient's extremities and bony prominences and keeping bony areas from direct contact with one another (Note: Donut-shaped devices are not recommended)
6. Keeping skin dry and well-lubricated
7. Use of lifting devices, such as trapeze, lifting sheet, or Hoyer lift
8. Nutritional support and dental care
9. Rehabilitation, such as range of motion or encouraging ambulation
10. Educational programs for patients and caregivers on etiology and risk factors for pressure ulcers

MAJOR OUTCOMES CONSIDERED

- Risk for pressure ulcer development
- Signs of skin breakdown

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline was adapted from the Agency for Health Care Policy and Research (AHCPR, now known as the Agency for Healthcare Research and Quality [AHRQ]) Clinical Guidelines "Pressure Ulcers in Adults: Prediction and Prevention" (May 1992).

Additional MEDLINE and CINAHL searches were conducted.

The Web was also used to access professional organizations that are involved in pressure ulcer care (e.g., National Pressure Ulcer Advisory Panel; Wound, Ostomy, Continence Nursing Society).

NUMBER OF SOURCE DOCUMENTS

12,000

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Evidence Grades

- A. Evidence from well-designed meta-analysis.
- B. Evidence from well-designed controlled trials, both randomized and nonrandomized, with results that consistently support a specific action (e.g., assessment, intervention or treatment).
- C. Evidence from observational studies (e.g., correlational descriptive studies) or controlled trials with inconsistent results.
- D. Evidence from expert opinion or multiple case reports.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Trial Implementation Period
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Reviewed by series editor Marita G. Titler, PhD, RN, FAAN and nationally known expert

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The evidence grades supporting the recommendations (A, B, C, D) are repeated at the end of the "Major Recommendations" field.

Definition of Pressure Ulcers

A pressure ulcer is any injury usually caused by unrelieved pressure that damages the skin and underlying tissue. Pressure ulcers are also called 'decubitus ulcers', 'bed sores', or 'pressure sores, and their severity ranges from reddening of the skin to severe, deep craters that have formed down to muscle and bone.

Classification of Pressure Ulcers

Research indicates that there are several stages to the severity and condition of pressure ulcers. Treatment of these ulcers must acknowledge these differing stages, as adapted from the U. S. Department of Health and Human Services, Agency for Health Care Policy and Research (1992) (AHCPR, currently known as the Agency for Healthcare Research and Quality [AHRQ]) guidelines:

- Stage 1: Non-blanchable erythema of intact skin, the heralding lesion of skin ulceration. In individuals with darker skin, discoloration of skin, warmth, edema, induration, or hardness may also be indicators. The definition according to the National Pressure Ulcer Advisory Panel (NPUAP) states "A stage I pressure ulcer is an observable pressure related alteration of intact skin whose indicators as compared to the adjacent or opposite area on the body may include changes in one or more of the following: skin temperature (warmth or coolness), tissue consistency (firm or boggy feel) and/or sensation (pain, itching). The ulcer appears as a defined area of persistent redness in lightly pigmented skin, whereas in darker skin tones, the ulcer may appear with persistent red, blue or purple hues."

Please note: Assessment of Stage 1 pressure ulcers is difficult in patients with darkly pigmented skin. In lighter-skinned people, a Stage 1 pressure ulcer may change skin color to a dark purple or red area that does not become pale

under fingertip pressure. In dark-skinned people, this area may become darker than normal. The affected area may feel warmer than surrounding tissue. When an eschar is present, accurate staging is not possible.

- Stage 2: Partial thickness skin loss involving epidermis, dermis or both (e.g. abrasion, blister, or shallow crater).
- Stage 3: Full thickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia (deep crater with or without undermining). The ulcer presents clinically as a deep crater with or without undermining adjacent tissue.
- Stage 4: Full thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures (e.g. tendon or joint capsule).

Individuals At Risk For Pressure Ulcers

Based upon research review, the following two factors have been identified as factors that place patients at increased risk for the development of pressure ulcers:

- Patients who are chairfast or bedfast.

After identifying patients who are chairfast or bedfast, the following characteristics further increase the risk for pressure ulcer development:

- Advanced age increases even more the likelihood of pressure ulcers among patients who are chair or bedfast.
- Patients with impaired ability to reposition themselves in chair or bed.
- Patients with friction and shearing (i.e., unable to pull self up in bed, patient who has involuntary muscle movements that cause rubbing against sheets).
- Patients who have decreased sensory perception (i.e., loss of feeling in certain part of body, patient who is comatose).
- Patients with decreased nutritional intake (i.e., not taking in minimal daily requirements).
- Patients with excessive exposure to moisture (i.e., incontinence, excessive perspiration, wound drainage).

The Braden Scale for Predicting Pressure Sore Risk is a research-based tool that can estimate the level of risk for pressure ulcers and predict which patients are most likely to develop pressure ulcers (refer to the Braden Scale for Predicting Pressure Sore Risk in Appendix A of the original guideline document). Previous research indicated that patients whose score on the Braden Scale is equal to 16 or lower in acute care settings; 18 or lower in long term care settings, were considered at risk (Evidence Grade = B). Current research indicates that a patient in any setting with a score of 18 or below is at risk. The risk assessment should be completed on admission and 48 hours later. Clinicians should then establish an ongoing frequency to both continue to assess the patient and determine the appropriate interventions based on the assessment. This can prevent the overuse of costly treatments. However, as with most screening tools, the Braden Scale's accuracy may vary across types of settings. Therefore, it cannot stand alone in predicting pressure ulcers in individual patients. Regular

skin assessment for early signs of pressure injury is an essential adjunct to risk assessment.

Description of Intervention

1. Assess patients for alterations in skin. After initial assessment with the Braden Scale, reassess patient on a regular basis and document findings. Document these findings on the Pressure Ulcers Management Monitor, (refer to Appendix B in the original guideline document), if your organization/unit does not already employ a similar charting mechanism. Assessment time will vary by setting and by patient.
 - A. Nursing homes patients should be assessed every 48 hours for the first week, weekly for one month, then quarterly, or more frequently if condition changes. (Note: People in nursing homes usually get skin breakdown in their first 2 to 4 weeks).
 - B. In home care settings, a skin assessment should be done at each visit and family members should be taught to assess skin.
 - C. In stable hospitalized medical-surgical patients with an anticipated length of stay of less than one week, assessment on admission and at 48 hours may be adequate. (Evidence Grade = C).
 - D. In intensive care units, stable patients can be assessed daily and unstable patients should be assessed every shift.

Regardless of the care setting, frequency of skin assessments may need to be increased if the patients' status deteriorates.

2. For patients who are unable to reposition themselves, reposition the patient every 2 hours. Use a written turning schedule and provide documentation (Exton-Smith & Sherwin, 1961; Smith & Malone, 1990). Keep in mind that those who are at significant risk may develop Stage I ulcers in less than 2 hours on a standard support surface (Clark, 1998) (Evidence Grade = D).
3. Keep the head of the patient's bed at or below a 30-degree angle.
4. Place a pressure-reducing surface on the patient's bed and/or chair. These surfaces can include such surfaces as: foam, air, gel, or water cushions or mattresses (Andersen et al., 1983; Daechsel & Conine, 1985; Whitney, Fellows, & Larson, 1984) (Evidence Grade = C).
5. Use site-specific support surfaces on the patient's extremities and bony prominences, and keep bony areas from direct contact with one another. For example, use items such as pillows or foam wedges, elbow pads, heel elevators.
 - DO NOT USE DONUT TYPE DEVICES, as these devices can cause venous congestion or edema (Crewe, 1987) (Evidence Grade = D).
6. Keep skin dry and well lubricated. Use creams or thin film of cornstarch to protect the skin (Ek, Gustavsson, & Lewis, 1985) (Evidence Grade = D).
 - DO NOT RUB BONY PROMINENCES
7. Minimize skin injury due to friction and shearing. Do not drag skin across linens when positioning or lifting up the patient in bed. Use lifting devices such as a trapeze, lifting sheet, or Hoyer lift.
8. For nutritionally-compromised patients, a plan of nutritional support and/or supplementation should be implemented. Also check to see that teeth are in good condition or dentures fit properly (Russell, 2000) (Evidence Grade = D).

9. If potential for improving mobility and activity status exists for particular patients, begin rehabilitation (i.e., range of motion exercises, encourage ambulation). Consider a Physical Therapy referral.
10. When the patient lies on his or her side while in bed, avoid positioning the patient directly on trochanter. A 30-degree side to side turn may be used rather than a 90-degree side to side turn (Clark, 1998) (Evidence Grade = D).
11. Patients sitting in chairs who are able to reposition themselves, should be encouraged to shift their weight every 15 minutes.
12. Educational programs for prevention of pressure ulcers should be comprehensive and directed at health care providers, patients, and family caregivers (Andberg, Rudolph, & Anderson, 1983; Dimant & Francis, 1988; Frye, 1986; Khun & Wygonski, 1984; Krouskop et al., 1983; Levine, Simpson, & McDonald, 1989; Rothery, 1989; Stover & Fine, 1986) (Evidence Grade = D).
 - Such information can be found through the Agency for Health Care Policy and Research (AHCPR) Pressure Ulcers Clinical Practice Guidelines series.
13. Educational programs should include information about the etiology and risk factors for pressure ulcers, the risk assessment tools and their application, skin assessment, selection and/or use of support surfaces, development and implementation of an individualized program of skin care, demonstration of positioning to decrease risk of tissue breakdown, and instruction on accurate documentation of pertinent information (Blom, 1985; Dimant & Francis, 1988; Frye, 1986; Hamilton et al., 1989; Krouskop et al., 1983; LaMantia et al., 1987; Levine, Simpson, & McDonald, 1989; Moody et al., 1988; Morison, 1989; Ozer et al., 1989; Reed, 1981; Sater et al., 1987; Somers & Drake, 1989; Starling, 1990) (Evidence Grade = D).

Definitions:

Evidence Grades

- A. Evidence from well-designed meta-analysis.
- B. Evidence from well-designed controlled trials, both randomized and nonrandomized, with results that consistently support a specific action (e.g., assessment, intervention or treatment).
- C. Evidence from observational studies (e.g., correlational descriptive studies) or controlled trials with inconsistent results.
- D. Evidence from expert opinion or multiple case reports.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The evidence in this protocol is based upon research studies that included older adult populations.

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Prevention of pressure ulcers

Subgroups Most Likely to Benefit:

Patients at increased risk who can benefit most from these recommendations include those who are:

- Chairfast or bedfast
- Elderly
- With impaired ability to reposition themselves in chair or bed
- At risk for friction or shearing (i.e., unable to pull self up in bed, patient who has involuntary muscle movements that cause rubbing against sheets)
- With decreased sensory perception (i.e., loss of feeling in certain part of body, patient who is comatose)
- With decreased nutritional intake (i.e., not taking in minimal daily requirements)
- With excessive exposure to moisture (i.e., incontinence, excessive perspiration, wound drainage)

POTENTIAL HARMS

Isolated instances of patients being injured when placed on "high tech" low air loss beds

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This research-based practice is a general guideline. Patient care continues to require individualization based on patient needs and requests.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Evaluation of Patient Process Factors and Outcomes

In order to evaluate the use of this protocol among patients at risk for pressure ulcers and the treatment of any that develop, both outcome and process factors should be evaluated.

Process Factors

Process Indicators are those interpersonal and environmental factors that can facilitate the use of the protocol.

One process factor that can be assessed with a sample of nurses and/or physicians is knowledge about prevention of pressure ulcers. The Prevention of Pressure Ulcers Knowledge Assessment Test (refer to Appendix C in the original guideline document for details) should be assessed before and following the education of staff regarding use of this protocol.

The same sample of the nurses and/or physicians for whom the Knowledge Assessment test was given should also be given the Process Evaluation Monitor (refer to Appendix D in the original guideline document for details) approximately one month following his/her use of the protocol. The purpose of this monitor is to determine their understanding of the protocol and to assess the support for carrying out the protocol. Education staff should determine frequency of use of the Process Evaluation Monitor in order to check the on-going knowledge and understanding of the protocol used. It may be incorporated into yearly competency evaluations.

Outcomes Factors

In order to document the success of the prevention of pressure ulcers program that is devised for individualized specific patients, and based upon this protocol, use or adapt the Pressure Ulcers Management Monitor (refer to Appendix B in the original guideline document for details). This Monitor will chart individual patient audits to determine the adequacy of pressure ulcer prevention. Adapt this monitor to your individual organization or unit, and add any outcomes that you feel are appropriate for individual patients. The outcomes on this Monitor are based upon patient interviews and examinations which elicit specific information regarding pressure ulcers. Please use the Monitor at least weekly. The outcomes to be charted for patients considered at risk for developing pressure ulcers include: 1) level of skin integrity; 2) signs of skin breakdown, specifically type of ulcer; and 3) consistency of preventive interventions used.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

The guideline was adapted from the Agency for Health Care Policy and Research (AHCPR) Clinical Guidelines "Pressure Ulcers in Adults: Prediction and Prevention" (May 1992).

DATE RELEASED

1997 (revised 2002 May)

GUIDELINE DEVELOPER(S)

University of Iowa Gerontological Nursing Interventions Research Center,
Research Dissemination Core - Academic Institution

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GUIDELINE COMMITTEE

University of Iowa Gerontological Nursing Interventions Research Center
Dissemination Core

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It updates a previous version: Research Dissemination Core. Prevention of pressure ulcers. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center; 1997. 17 p.

GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available from the University of Iowa Gerontological Nursing Interventions Research Center, Research Dissemination Core, 4118 Westlawn, Iowa City, IA 52242. For more information, please see the [University of Iowa Gerontological Nursing Interventions Research Center Web site](#).

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on March 1, 1999. The information was verified by the guideline developer on May 5, 1999. This summary was updated by ECRI on December 19, 2002. The information was verified by the guideline developer on February 3, 2003.

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